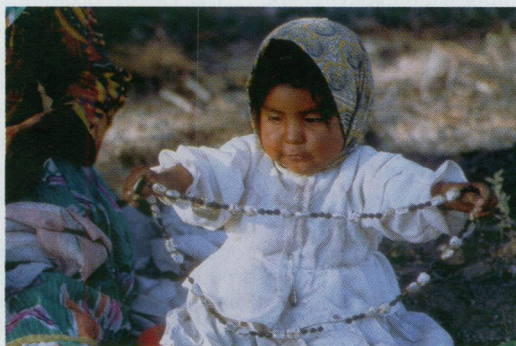


LEAD

Studying Lead in Tijuana Tots

Researchers at the University of California at Irvine have recently completed a three-year project to assess lead exposure in more than 1,719 children in Tijuana, Mexico, and launch a lead prevention public health program there. Besides already producing positive effects in Tijuana, researchers say, the program could eventually lower the risk of lead poisoning among migrant children in the United States, since many of those children come from Tijuana.

During the project, led by Jon Ericson, a professor and interim chair of the Department of Environmental Analysis, and Dean Baker, director of the College of Medicine's Center for Occupational and Environmental Health, nearly 11% of the chil-



Lead in Mexico. A new study of Tijuana children shows that nearly 11% have dangerously high blood lead concentrations due to exposure to lead-glazed cookware.

dren were found to have unhealthily high concentrations of blood lead. Their exposure was traced primarily to lead-glazed pots fired at low temperatures, the cookware of choice throughout much of Mexico. Researchers identified other sources of exposure as well, including dust found inside homes, soil outside homes, and lead-based house paint. The mean blood lead concentration measured was 5.5 micrograms per deciliter. This concentration is not considered life-threatening, but it can affect IQ, attention span, and ability to learn, says Baker. "The children also may have more illnesses and become more belligerent and violent," he says.

The Tijuana children's blood lead concentrations were more than double those found in U.S. children in studies conducted in the past 5–10 years. Researchers found another cause for concern: In U.S. studies, blood lead concentrations decreased with age, while in Tijuana, they stayed the same or increased with the child's age, perhaps because of the continued use of lead-glazed pottery and the fact that Mexico only began phasing out leaded gasoline in 1992. Researchers also found that children whose families had little or no access to health care and whose mothers had less than a sixth-grade education and cooked with ceramic cooking pots were six times more likely to

have lead poisoning. After working with parents to identify sources of lead exposure and educate them about how to minimize those risks, however, the researchers saw blood lead concentrations fall in nearly all of the children who were part of the study's case management program.

Even though cooking pots are the primary culprit, Ericson cautions that lead in soil contributes to the problem in Tijuana as it does in the United States, although children in the Tijuana study typically were exposed to lower soil lead concentrations than U.S. children in some urban areas. But even in small amounts, lead from the soil can elevate blood lead concentrations in children.

The research team worked with health care professionals in Tijuana to implement a sustainable system under which the city could continue to monitor lead levels, diagnose and treat lead poisoning, and educate citizens about prevention. "More than 1,000 public health professionals in Tijuana, including 205 physicians, nurses, and epidemiologists, have been trained in lead poisoning prevention," Ericson says. In addition, an analytical laboratory in Tijuana's General Hospital has been certified by the Centers for Disease Control and Prevention to perform blood lead screenings for anyone living in Tijuana.

Martha Vazquez, the binational coordinator with the Irvine team, believes that the percentage of children found to be exposed to lead is cause for real concern. "This means that the health sector in Tijuana needs to start working at the primary [care] level," she says.

She admits that it won't be an easy task. "We don't have a lot of money to promote health education," she explains. "During the study I was perfectly sure that 2,000 families and 500 doctors were educated [about lead]. But the population of Tijuana is over a million."

Vazquez believes that, once all the final data from the study are analyzed, the Mexican government will make the lead program a higher priority. "In Mexico," she says, "there are not enough human or economic resources for preventive medicine and educational programs, but at the primary level they can do a lot." —Jennifer Medlin

Asbestos at Home

In February 2000, the U.S. EPA issued a warning for people to avoid disturbing any household insulation that may contain tremolite, a rare form of asbestos that easily penetrates lung tissue, where it can lead to severe dysfunction and cancer. Preliminary EPA testing found tremolite fibers in Zonolite brand household insulation, made from vermiculite ore—a volcanic mineral compound—as well as in other household and garden products. The EPA estimated in 1985 that the loose-fill insulation had been installed in 940,000 U.S. homes.

The EPA is concerned that consumers could be exposed to the dangerous mineral fibers when doing renovations, and is working to determine the extent of the threat to the public. A facility has been installed at the agency's Manchester, Washington, laboratory especially for testing vermiculite products. The EPA also advises that if insulation must be removed, those doing the removal should wear high-efficiency particle-arresting respirators, which prevent tremolite fibers from reaching the lungs.

Leashing Leishmaniasis

German scientists have found a cure for the often fatal disease leishmaniasis. The disease, which is transmitted by blood-sucking sandflies, affects more than 12 million people worldwide, mainly in tropical and subtropical areas, with a growing number of cases in southern Europe. The new treatment—an oral form of a drug called miltefosine—has an efficacy rate of 98% for disease sufferers who take the medicine daily for four weeks. The treatment was reported in the 9 December 1999 issue of the *New England Journal of Medicine*.

Although the search for a vaccine was begun 30 years ago, until now treatment was limited to intravenous therapy with dangerously toxic compounds to which the disease was becoming increasingly resistant. Scientists are concerned that the spread of AIDS is influencing the spread of leishmaniasis, as some forms of the disease result in symptoms only in people with weakened immune systems. In Spain, 50% of leishmaniasis patients were also diagnosed with AIDS.

Prawns and Ponds

The possible damaging effects of untreated prawn farm effluent are a growing environmental concern as large-scale prawn-growing operations are being built in a number of countries. However, marine scientists at Australia's Commonwealth Scientific and Industrial Research Organisation have developed an integrated nutrient removal process that, if implemented by prawn farmers, may eliminate most waste nutrients from the effluent.

The scientists discovered that using a combination of sedimentation ponds, treatment ponds containing beds of oysters and marine plants, and partial recirculation reduced the nutrient load in the discharge water by 75%. Increasing the size of the ponds would decrease the nutrient load even further.

